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<110> Ladner, Robert Charles
Guterman, Sonia Kosow
Roberts, Bruce Lindsay
Markland, William
Ley,Arthur Charles
Kent, Rachel Baribault

<120> DIRECTED EVOLUTION OF NOVEL BINDING PROTEINS

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<150> 08/993,776
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<150> 08/415,922
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<400> 38

Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1 5 10 15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys
20 25

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<223> where Xaa can be any naturally occurring amino acid

<400> 39

Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1 5 10 15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys
20 25

<210> 40
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<222> (5)..(10)
<223> where Xaa can be any naturally occurring amino acid

<400> 40

His Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
1 5 10

<210> 41
<211> 14

<212> PRT
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<222> (5)..(10)

<400> 41

Cys Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly His
1 5 10

<210> 42
<211> 15
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<223> where Xaa can be any naturally occurring amino acid

<400> 42

His Gly Pro Xaa Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
1 5 10 15

<210> 43
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<212> PRT
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<400> 43

Ser Asp Glu Ala Ser Gly Cys His Tyr Gly Val Leu Thr
1 5 10

<210> 44
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 44

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 45
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 45

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 46
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 46

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 47
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 47

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 48
<211> 58
<212> PRT
<213> Artificial Sequence

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<400> 48

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 49
<211> 58
<212> PRT
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<220>
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<400> 49

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 50
<211> 58
<212> PRT
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<400> 50

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Lys Arg Leu Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 51
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala

35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 52
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 52

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 53
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 53

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 54
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 54

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Gly
1 5 10 15

Phe Ser Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 55
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 55

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 56
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 56

Arg Pro Asp Phe Cys Leu Glu Pro Pro Asn Thr Gly Pro Cys Phe Ala
1 5 10 15

Ile Thr Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 57
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 57

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 58
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 58

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Ile Ser Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 59
<211> 58

<212> PRT
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<220>
<223> Synthetic Peptide

<400> 59

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Lys Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 60
<211> 58
<212> PRT
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<220>
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<400> 60

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 61
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gly Tyr Ala Gly Cys Arg Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 62
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 62

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys His Ala Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 63
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 63

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Trp Ala Gln Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 64
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 64

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Arg Tyr Gly Gly Cys Leu Ala Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 65
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 65

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asp Tyr Gly Gly Cys His Ala Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 66
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 66

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Leu Ala His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 67
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 67

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 68
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 68

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asn Tyr Gly Gly Cys Glu Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 69
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 69

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Glu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 70
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 70

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Leu Gly Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 71
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 71

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Gln Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 72
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 72

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 73
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 73

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 74
<211> 58
<212> PRT
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<220>
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<400> 74

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 75
<211> 58
<212> PRT
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<220>
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<400> 75

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Pro Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Leu Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 76
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 76

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 77
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 77

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asn Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 78
<211> 58
<212> PRT
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<220>
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<400> 78

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 79
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
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<400> 79

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 80
<211> 58
<212> PRT
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<400> 80

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

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Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Lys Tyr Gly Gly Cys Trp Ala Glu Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 81
<211> 58
<212> PRT
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<400> 81

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Gly Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 82
<211> 58
<212> PRT
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<220>
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<400> 82

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Glu Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 83
<211> 58
<212> PRT
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<220>
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<400> 83

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys His Gly Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 84
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 84

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Met Tyr Gly Gly Cys Gln Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 85
<211> 58
<212> PRT
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<220>

<223> synthetic peptide

<400> 85

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Tyr Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 86
<211> 58
<212> PRT
<213> Artificial sequence

<220>
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<400> 86

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Met Tyr Gly Gly Cys Trp Gly Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 87
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 87

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 88
<211> 11
<212> DNA
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<220>
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<220>
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<222> (4)..(8)
<223> where n can be any nucleotide

<400> 88
ccannnnntg g 11

<210> 89
<211> 168
<212> DNA
<213> Artificial sequence

<220>
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<400> 89
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gcttctgcta ccgaatatat cggttacgcg tgggccatgg tggtggttat cgttggtgct 120

accatcggta tcaaactgtt taagaaattt acttcgaaag cgtcttga 168

<210> 90
<211> 13
<212> DNA
<213> Artificial sequence

<220>
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<400> 90
ccgtcgaatc cgc 13

<210> 91
<211> 13
<212> DNA
<213> Artificial sequence

<220>

<223> synthetic oligonucleotide

<400> 91
gcggatttga cgg 13

<210> 92
<211> 16
<212> DNA
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<220>
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<400> 92
cgtaacctcg tcatta 16

<210> 93
<211> 16
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<220>
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<400> 93
ccgtaggtac ctacgg 16

<210> 94
<211> 15
<212> DNA
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<220>
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<400> 94
cacggctatt acggt 15

<210> 95
<211> 12
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<220>
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<400> 95
accgtaatag cc 12

<210> 96
<211> 20
<212> DNA
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<220>
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<400> 96
acttcctcat gaaaaagtct 20

<210> 97
<211> 20
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<400> 97
acttcctcat gaaaaagtct 20

<210> 98
<211> 20
<212> DNA
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<220>
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<400> 98
acttccagct gaaaaagtct 20

<210> 99
<211> 20
<212> DNA
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<220>
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<400> 99
acttccagct gaaaaagtct 20

<210> 100
<211> 15
<212> DNA
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<220>
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<400> 100
cgagggagga ggatc 15

<210> 101
<211> 15
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<223> n = a or g

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agnttngcna gnccngantt ntgnctngan ccnccntana cnggnccntg naangcnagn 120

atnatncgnt anttntanaa ngcnaangcn ggnctntgnc anacnttngt ntanggnggn 180

tgnagngcna anagnaanaa nttnaanagn gcngangant gnatgcgnac ntgnggnggn 240

gcngcngang gnganganCC ngcnaangcn gcnttnaana gnctncangc nagngcnacn 300

gantanatng gntangcntg ggcnatggtn gtngtnatng tnggngcnac natnggnatn 360

aanctnttna anaanttnac nagnaangcn agntgatgat ga 402

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<220>
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<210> 109
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ccttgcatcg ctttgttcaa acgctat 27

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<400> 117
atgggtttct ccaaa 15

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His His His His
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Pro Val Thr Lys Ala
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<220>
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<400> 128

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser
130

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<211> 64
<212> DNA
<213> Artificial sequence

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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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(.22 T, .16 C, .40 A, and .22 G)

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cgcc 64

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cggccgcgcc 70

<210> 131
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<212> DNA
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

<220>
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ccaaagcggc cgcgcc 76

<210> 132
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<220>
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<400> 132
ggcgcggccg ctttggccgg atc 23

<210> 133
<211> 58
<212> DNA
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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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<223> where n can T or G with equal probability

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<220>
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<210> 134
<211> 63
<212> DNA
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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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<223> where n can be T or G with equal probability

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cga 63

<210> 135
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<212> DNA
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(.22 T, .16 C, .40 A, and .22 G)

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<221> misc_feature
<222> (37)..(37)
<223> where n can T or G with equal probability

<220>
<221> misc_feature
<222> (38)..(38)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (39)..(39)

<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (40)..(40)
<223> where n can T or G with equal probability

<220>
<221> misc_feature
<222> (41)..(41)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (42)..(42)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (43)..(43)
<223> where n can T or G with equal probability

<220>
<221> misc_feature
<222> (44)..(44)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (45)..(45)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (46)..(46)
<223> where n can T or G with equal probability

<220>
<221> misc_feature
<222> (47)..(47)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (48)..(48)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (49)..(49)
<223> where n can T or G with equal probability

<400> 135
ggccgcggta ccgatgctgt cttttgctnn nnnnnnnnnn nnnnnnnnnt tctgtctcga 60

gcgcccgcga 70

<210> 136
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 136
tcgcgggcgc tcgagacaga a 21

<210> 137
<211> 47
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 137
gagctcagag gcttactatg aagaaatctc tggttcttaa ggctagc 47

<210> 138
<211> 49
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 138
gagctctgga ggaaataaaa tgaagaaatc tctggttctt aaggctagc 49

<210> 139
<211> 41
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 139
gatcctctag agtcggcttt acactttatg cttccggctc g 41

<210> 140
<211> 37
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 140
cgagccggaa gcataaagtg taaagccgac tctagag 37

<210> 141
<211> 36
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 141
gatccactcc ccatcccccct gttgacaatt aatcat 36

<210> 142
<211> 34
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 142
cgatgattaa ttgtcaacag ggggatgggg agtg 34

<210> 143
<211> 88
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 143
gagctccatg ggagaaaata aaatgaaaca aagcacgatc gcactcttac cgttactgtt 60

taccccctgtg acaaaagccc gtccggat 88

<210> 144
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 144

Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
1 5 10 15

Thr Lys Ala Arg Pro Asp
20

<210> 145
<211> 210
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 145
ggatccggtg gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa 60

atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat 120

tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc ctttttgcg 180

gcattttgcc ttcctgtttt tgctcatccg 210

<210> 146
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 146

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro
20 25

<210> 147
<211> 25
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 147
gtttcagcgg cgccagaata gaaag 25

<210> 148
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 148
tattctggcg cccgt 15

<210> 149
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 149
ccggacgggc gccagaata 19

<210> 150
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 150

Gly Ser Ser Ser Leu
1 5

<210> 151
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (5)..(9)
<223> where n can be any nucleotide

<400> 151
ggccnnnnng gcc 13

<210> 152
<211> 536
<212> DNA
<213> Bos taurus

<400> 152
cggaccgtat ccaggcttta cactttatgc ttccggctcg tataattgga attgtgagcg 60

gataacaatt cctaggaggc tcactatgaa gaaatctctg gttcttaagg ctagcgttgc 120

tgtcgcgacc ctggtaccga tgctgtcttt tgctcgtccg gatttctgtc tcgagccgcc 180

atatactggg ccctgcaaag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct 240

gtgccagacc tttgtatacg gtggttgccg tgctaagcgt aacaacttta aatcggccga 300

agattgcatg cgtacctgcg gtggcgccgc tgaaggtgat gatccggcca aagcggcctt 360

taactctctg caagcttctg ctaccgaata tatcggttac gcgtgggcca tggtggtggt 420

tatcgttggt gctaccatcg gtatcaaact gtttaagaaa tttacttcga aagcgtctta 480

atagtgaggt taccagtcta agcccgccta atgagcgggc ttttttttttc ctgagg 536

<210> 153
<211> 131
<212> PRT
<213> Bos taurus

<400> 153

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser
130

<210> 154
<211> 176
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 154
ccgtccgtcg gaccgtatcc aggctttaca ctttatgctt ccggctcgta taatgtgtgg 60

aattgtgagc ggataacaat tcctagggcc gctccttcga aagcgtctta atagtgaggt 120

taccagtcta agcccgccta atgagcgggc ttttttttc ctgaggcagg tgagcg 176

<210> 155
<211> 4

<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 155

Ser Lys Ala Ser
1

<210> 156
<211> 100
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 156
cgctcacctg cctcggaaaa aaaaaagccc gctcattagg cgggcttaga ctggtaacct 60

cactattaag acgctttcga aggagcggc cctaggaatt g 100

<210> 157
<211> 171
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 157
gcaccaacgc ctaggaggct cactatgaag aaatctctgg ttcttaaggc tagcgttgct 60

gtcgcgaccc tggtaccgat gctgtctttt gctcgtccgg atttctgtct cgagccgcca 120

tatactgggc cctgcaaagc gcgcatcatc cgtacttcga aagcggctgc g 171

<210> 158
<211> 46
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 158

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Thr Ser Lys

35 40 45

<210> 159
<211> 168
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 159
cctcgccctg gcgccgctga aggtgatgat ccggccaaag cggcctttaa ctctctgcaa 60

gcttctgcta ccgaatatat cggttacgcg tgggccatgg tggtggttat cgttggtgct 120

accatcggta tcaaactgtt taagaaattt acttcgaaag cgtcgggc 168

<210> 160
<211> 96
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 160
cgcagccgct ttcgaagtac ggatgatgcg cgctttgcag ggcccagtat atggcggctc 60

gagacagaaa tccggacgag caaaagacag catcgg 96

<210> 161
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 161
ccgtccgtcg gaccgtatcc aggctttaca ctttatgctt ccggctcgta taatgtgtgg 60

aattgtgagc ggataacaat tcctagggcc gctccttcg 99

<210> 162
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 162
gcaccaacgc ctaggaggct cactatgaag aaatctctgg ttcttaaggc tagcgttgct 60

gtcgcgaccc tggtaccgat gctgtctttt gctcgtccg 99

<210> 163

<211> 165
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 163
ccctgcacag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct gtgccagacc 60

tttgtatacg gtggttgccg tgctaagcgt aacaacttta atcggccga agattgcatg 120

cgtacctgcg gtggcgccgc tgaatttact tcgaaagcgt cgccg 165

<210> 164
<211> 46
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 164

Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
1 5 10 15

Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser
20 25 30

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Thr Ser Lys
35 40 45

<210> 165
<211> 50
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 165

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
1 5 10 15

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
20 25 30

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
35 40 45

Ser Lys
50

<210> 166
<211> 97
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 166
cggcgacgct ttcgaagtaa attctgcggc gccaccgcag gtacgcatgc aatcttcggc 60

cgatttaaag ttgttacgct tagcacggca accaccg 97

<210> 167
<211> 93
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 167
ccctgcacag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct gtgccagacc 60

tttgtatacg gtggttgccg tgctaagcgt aac 93

<210> 168
<211> 93
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 168
tcaagacgct ttcgaagtaa atttcttaaa cagtttgata ccgatggtag caccaacgat 60

aaccaccacc atggcccacg cgtaaccgat ata 93

<210> 169
<211> 100
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 169
gctcgccctg gcgccgctga aggtgatgat ccggccaaag cggcctttaa ctctctgcaa 60

gcttctgcta ccgaatatat cggttacgcg tgggccatgg 100

<210> 170
<211> 130
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (29)..(29)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (30)..(30)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (52)..(52)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (53)..(53)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>

<221> misc_feature
<222> (59)..(59)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (60)..(60)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (73)..(73)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (74)..(74)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (75)..(75)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (115)..(115)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (116)..(116)
<223> where n can be nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (117)..(117)
<223> where n can be T or G with equal probability

<400> 170
caccctgggc cctgcaaagc gnnnatcnnn cgttatttct acaacgctaa annnggtnnn 60

tgccagacct tcnnntacgg tggttgccgt gctaagcgta acaactttaa atctnnngag 120

gattgcatgc 130

<210> 171
<211> 41
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>

<221> misc_feature
<222> (6)..(6)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (8)..(8)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (16)..(16)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (18)..(18)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (23)..(23)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (37)..(37)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<400> 171

Gly Pro Cys Lys Ala Xaa Ile Xaa Arg Tyr Phe Tyr Asn Ala Lys Xaa
1 5 10 15

Gly Xaa Cys Gln Thr Phe Xaa Tyr Gly Gly Cys Arg Ala Lys Arg Asn
20 25 30

Asn Phe Lys Ser Xaa Glu Asp Cys Met
35 40

<210> 172
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (29)..(29)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (30)..(30)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (52)..(52)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (53)..(53)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (59)..(59)

<223> where n can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (60)..(60)
<223> where n has an equal probability of being T or G

<400> 172
caccctgggc cctgcaaagc gnnnatcnnn cgttatttct acaacgctaa annnggtnnn 60

tgccagacct tc 72

<210> 173
<211> 78
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n is a nucleotide with equal probability of being C or A

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (64)..(64)
<223> where n is a nucleotide with equal probability of being C or A

<220>
<221> misc_feature
<222> (65)..(65)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (66)..(66)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<400> 173

ccacccacgc atgcaatcct cnnncgattt aaagttgtta cgcttagcac ggcaaccacc 60

gtannngaag gtctggca 78

<210> 174
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 174
ctcgagccgc catatactgg gccctgcaaa gcggatatcc agcgttattt ctacaacgct 60

aaagagggcc tgtgccagac cttttcgtac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggg aagattgcat gcgtacctgc ggtggcgcc 159

<210> 175
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 175

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Asp Ile Gln Arg Tyr
1 5 10 15

Phe Tyr Asn Ala Lys Glu Gly Leu Cys Gln Thr Phe Ser Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Glu Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 176
<211> 132
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of being C or A

<220>

<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (27)..(27)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n has an equal probability of being T or A

<220>
<221> misc_feature
<222> (33)..(33)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (34)..(34)
<223> where n has an equal probability of being G, C, or A

<220>
<221> misc_feature
<222> (35)..(35)
<223> where n has an equal probability of being G or T

<220>
<221> misc_feature
<222> (37)..(37)
<223> where n has an equal probability of being A or T

<220>
<221> misc_feature
<222> (57)..(57)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (66)..(66)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (67)..(67)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (68)..(68)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (69)..(69)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (70)..(70)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (71)..(71)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (120)..(120)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (121)..(121)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (122)..(122)
<223> where n has an equal probability of being T or G

<400> 176
cggcacgcgg gccctgcnna gcggatnnac agnnntnttt ctacaacgct aaagagnnnc 60

tgtgcnnnnn nttttcgtac ggtggttgcc gtgctaagcg taacaacttt aaatcgtggn 120

nngattgcat gc 132

<210> 177
<211> 41
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> misc_feature
<222> (4)..(4)
<223> where Xaa is an amino acid encoded by equal probability of CAA,
CGA, AAA or AGA

<220>
<221> misc_feature
<222> (7)..(7)
<223> where Xaa is an amino acid encoded by equal probability of AAA, GAA, ATA or GTA

<220>
<221> misc_feature
<222> (9)..(9)
<223> where Xaa is an amino acid encoded by a codon where the nucleotide in position 1 has an equal possibility of being A or G, the nucleotide in position 2 has an equal possiblility of being C, A, or G, and the nucleotide in position 3 can be T or G

<220>
<221> misc_feature
<222> (10)..(10)
<223> where Xaa is an amino acid encoded by a codon with equal possibility of being TTT or TAT

<220>
<221> misc_feature
<222> (17)..(17)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (20)..(21)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> misc_feature
<222> (38)..(38)
<223> where Xaa is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<400> 177

Gly Pro Cys Xaa Ala Asp Xaa Gln Xaa Xaa Phe Tyr Asn Ala Lys Glu
1 5 10 15

Xaa Leu Cys Xaa Xaa Phe Ser Tyr Gly Gly Cys Arg Ala Lys Arg Asn
20 25 30

Asn Phe Lys Ser Trp Xaa Asp Cys Met
35 40

<210> 178
<211> 61
<212> DNA
<213> Artificial sequence

<220>

<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n is a nucleotide with equal chance being C or A

<220>
<221> misc_feature
<222> (20)..(20)
<223> where n is a nucleotide complementary to a nucleotide having the probabilities : .22 T, .16 C, .40 A, or .22 G

<220>
<221> misc_feature
<222> (21)..(21)
<223> where n is a nucleotide complementary to a nucleotide having the probabilities : .26 T, .18 C, .26A, or .30 G

<400> 178
cgtccagcgc atgcaatcnn nccacgattt aaagttgtta cgcttagcac ggcaaccacc 60

g 61

<210> 179
<211> 94
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of bein C or A

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature
<222> (27)..(27)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n has an equal probability of bein T or A

<220>
<221> misc_feature
<222> (33)..(33)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature

<222> (34)..(34)
<223> where n has an equal probability of bein C, G, or A

<220>
<221> misc_feature
<222> (35)..(35)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (37)..(37)
<223> where n has an equal probability of bein T or A

<220>
<221> misc_feature
<222> (57)..(57)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (66)..(66)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (67)..(67)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (68)..(68)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (69)..(69)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (70)..(70)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (71)..(71)

<223> where n has an equal probability of being T or G

<400> 179
cggcacgcgg gccctgcnna gcggatnnac agnnntnttt ctacaacgct aaagagnnnc 60

tgtgcnnnnn nttttcgtac ggtggttgcc gtgc 94

<210> 180
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 180
ctcgagccgc catatactgg gccctgcgag gcggatgttc agaatttttt ctacaacgct 60

aaagagtttc tgtgctctgc tttttcgtac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggc aggattgcat gcgtacctgc ggtggcgcc 159

<210> 181
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 181

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Glu Ala Asp Val Gln Asn Phe
1 5 10 15

Phe Tyr Asn Ala Lys Glu Phe Leu Cys Ser Ala Phe Ser Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 182
<211> 117
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature

<222> (18)..(18)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being C or A

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (25)..(25)
<223> where n has an equal probability of being C or A

<220>
<221> misc_feature
<222> (42)..(42)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (43)..(43)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (44)..(44)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (55)..(55)
<223> where n has an equal probability of being A, G, or T

<220>
<221> misc_feature
<222> (56)..(56)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (72)..(72)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (78)..(78)
<223> where n has an equal probability of being A, C, G or T

<220>
<221> misc_feature
<222> (80)..(80)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature

<222> (87)..(87)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (88)..(88)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (89)..(89)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (93)..(93)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (94)..(94)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (95)..(95)
<223> where n has an equal probability of being G, or T

<400> 182
cgagcctgct cgagccgnng tatnnggggc cctgcgaggc gnnngttcag aattnnttct 60

acaacgccaa gnagtttntn tgctctnnnt ttnnntacgg tggttgccgt gctaagc 117

<210> 183
<211> 36
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> misc_feature
<222> (4)..(4)
<223> where Xaa is an amino acid with encoded by AAG, ACG, CAG, CCG, GAG,
or GCG with equal probability.

<220>
<221> misc_feature
<222> (6)..(6)
<223> where Xaa is an amino acid with encoded by AAG, ACG, CAG, CCG, GAG,
or GCG with equal probability.

<220>
<221> misc_feature
<222> (12)..(12)

<223> where Xaa is an amino acid encoded by a codon where the nucleotide in position 1 has the problility of .26, .18, .26, and .30 to be T, C, A, or G, respectively, the nucleotide in position 2 has the problbility of .22, .16, .40, and .22 to be T, C, A, or G, respectively, and the nucleotide in position 3 can be T or G.

<220>
<221> misc_feature
<222> (16)..(16)
<223> where Xaa is an amino acid encoded by TTT, TAT, TGT, TAG, TGG, or TTG with equal probability.

<220>
<221> misc_feature
<222> (22)..(22)
<223> where Xaa is an amino acid encoded by AAG, CAG, or GAG with equal probability

<220>
<221> misc_feature
<222> (24)..(24)
<223> where Xaa is an amino acid encoded by TTT, TTG, ATT, ATG, CTT, CTG, GTT, or GTG with equal probability

<220>
<221> misc_feature
<222> (27)..(27)
<223> where Xaa is an amino acid encoded by a codon where the nucleotide in position 1 has the problility of .26, .18, .26, and .30 to be T, C, A, or G, respectively, the nucleotide in position 2 has the problbility of .22, .16, .40, and .22 to be T, C, A, or G, respectively, and the nucleotide in position 3 can be T or G.

<220>
<221> misc_feature
<222> (29)..(29)
<223> where Xaa is an amino acid encoded by a codon where the nucleotide in position 1 has the problility of .26, .18, .26, and .30 to be T, C, A, or G, respectively, the nucleotide in position 2 has the problbility of .22, .16, .40, and .22 to be T, C, A, or G, respectively, and the nucleotide in position 3 can be T or G.

<400> 183

Leu Glu Pro Xaa Tyr Xaa Gly Pro Cys Glu Ala Xaa Val Gln Asn Xaa
1 5 10 15

Phe Tyr Asn Ala Lys Xaa Phe Xaa Cys Ser Xaa Phe Xaa Tyr Gly Gly
20 25 30

Cys Arg Ala Lys
35

<210> 184
<211> 71
<212> DNA
<213> Artificial sequence

<220>

<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being A or C

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (25)..(25)
<223> where n has an equal probability of being A or C

<220>
<221> misc_feature
<222> (42)..(42)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G

<220>
<221> misc_feature
<222> (43)..(43)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (44)..(44)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (55)..(55)
<223> where n has an equal probability of being A, T or G

<220>
<221> misc_feature
<222> (56)..(56)
<223> where n has an equal probability of being T or G

<400> 184
cgagcctgct cgagccgnng tatnnggggc cctgcgaggc gnnngttcag aattnnttct 60

acaacgccaa g 71

<210> 185
<211> 67
<212> DNA
<213> Artificial sequence

<220>

<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (31)..(31)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (32)..(32)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (33)..(33)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (37)..(37)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (38)..(38)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (39)..(39)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (46)..(46)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (48)..(48)
<223> where n has an equal possibility of being C, A, G, or T

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n has an equal possibility of being T, G, or C

<400> 185
cggccagcgc ttagcacggc aaccaccgta nnnaaannna gagcananaa actncttggc 60

gttgtag 67

<210> 186
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 186
ctcgagccgg agtatcaggg gccctgcgag gcggctgttc agaattggtt ctacaacgct 60

aaacagttta tgtgctctct ttttcattac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggc aggattgcat gcgtacctgc ggtggcgcc 159

<210> 187
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 187

Leu Glu Pro Glu Tyr Gln Gly Pro Cys Glu Ala Ala Val Gln Asn Trp
1 5 10 15

Phe Tyr Asn Ala Lys Gln Phe Met Cys Ser Leu Phe His Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 188
<211> 583
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 188
gaattcgagc tcggtacccg gggatcctct agagtcggct ttacacttta tgcttccggc 60

tcgtataatg tgtggaattg tgagcgctca caattgagct caggaggctt actatgaaga 120

aatctctggt tcttaaggct agcgttgctg tcgcgaccct ggtacctatg ttgtccttcg 180

ctcgtccgga tttctgtctc gagccaccat acactgggcc ctgcaaagcg cgcatcatcc 240

gctatttcta caatgctaaa gcaggcctgt gccagacctt tgtatacggt ggttgccgtg 300

ctaagcgtaa caactttaaa tcggccgaag attgcatgcg tacctgcggt ggcgccgctg 360

aaggtgatga tccggccaag gcggccttca attctctgca agcttctgct accgagtata 420

ttggttacgc gtgggccatg gtggtggtta tcgttggtgc taccatcggg atcaaactgt 480

tcaagaagtt tacttcgaag gcgtcttaat gatagggtta ccagtctaag cccgcctaat 540

gagcgggctt ttttttttatc gagacctgca ggcatgcaag ctt 583

<210> 189
<211> 584
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 189
gaattcgagc tcggtacccg gggatcctct agagtcggct ttacacttta tgcttccggc 60

tcgtataatg tgtggaattg tgagcgctca caattgagct cagaggctta ctatgaagaa 120

atctctggtt cttaaggcta gcgttgctgt cgcgaccctg gtacctatgt tgtccttcgc 180

tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc gcatcatccg 240

ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacggtg gttgccgtgc 300

taagcgtaac aactttaaat cggccgaaga ttgcatgcgt acctgcggtg gcgccgctga 360

aggtgatgat ccggccaagg cggccttcaa ttctctgcaa gcttctgcta ccgagtatat 420

tggttacgcg tgggccatgg tggtggttat cgttggtgct accatcggga tcaaactgtt 480

caagaagttt acttcgaagg cgtcttaatg atagggttac cagtctaagc ccgcctaatg 540

agcgggcttt ttttttatcg agacctgcag gtcgaccggc atgc 584

<210> 190
<211> 556
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 190
ggatcctcta gagtcggctt tacactttat gcttccggct cgtataatgt gtggaattgt 60

gagcgctcac aattgagctc aggaggctta ctatgaagaa atctctggtt cttaaggcta 120

gcgttgctgt cgcgaccctg gtacctatgt tgtccttcgc tcgtccggat ttctgtctcg 180

agccaccata cactgggccc tgcaaagcgc gcatcatccg ctatttctac aatgctaaag 240

caggcctgtg ccagaccttt gtatacggtg gttgccgtgc taagcgtaac aactttaaat 300

cggccgaaga ttgcatgcgt acctgcggtg gcgccgctga aggtgatgat ccggccaagg 360

cggccttcaa ttctctgcaa gcttctgcta ccgagtatat tggttacgcg tgggccatgg 420

tggtggttat cgttggtgct accatcggga tcaaactgtt caagaagttt acttcgaagg 480

cgtcttaatg atagggttac cagtctaagc ccgcctaatg gacgggcttt ttttttatcg 540

agacctgcag gcatgc 556

<210> 191
<211> 131
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 191

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser
130

<210> 192
<211> 562
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 192
ggatcctcta gagtcggctt tacactttat gcttccggct cgtataatgt gtggaattgt 60

gagcgctcac aattgagctc agaggcttac tatgaagaaa tctctggttc ttaaggctag 120

cgttgctgtc gcgaccctgg tacctatgtt gtccttcgct cgtccggatt tctgtctcga 180

gccaccatac actgggccct gcaaagcgcg catcatccgc tatttctaca atgctaaagc 240

aggcctgtgc cagacctttg tatacggtgg ttgccgtgct aagcgtaaca actttaaatc 300

ggccgaagat tgcatgcgta cctgcggtgg cgccgctgaa ggtgatgatc cggccaaggc 360

ggccttcaat tctctgcaag cttctgctac cgagtatatt ggttacgcgt gggccatggt 420

ggtggttatc gttggtgcta ccatcgggat caaactgttc aagaagttta cttcgaaggc 480

gtcttaatga tagggttacc agtctaagcc cgcctaatga cgggcttttt ttttatcgag 540

acctgcaggt cgaccggcat gc 562

<210> 193
<211> 12
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (4)..(9)
<223> where n can be any nucleotide

<400> 193
ccannnnnnt gg 12

<210> 194
<211> 526
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 194
ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60

agctcaggag gcttactatg aagaaatctc tggttcttaa ggctagcgtt gctgtcgcga 120

ccctggtacc tatgttgtcc ttcgctcgtc cggatttctg tctcgagcca ccatacactg 180

ggccctgcaa agcgcgcatc atccgctatt tctacaatgc taaagcaggc ctgtgccaga 240

cctttgtata cggtggttgc cgtgctaagc gtaacaactt taaatcggcc gaagattgca 300

tgcgtacctg cggtggcgcc gctgaaggtg atgatccggc caaggcggcc ttcaattctc 360

tgcaagcttc tgctaccgag tatattggtt acgcgtgggc catggtggtg gttatcgttg 420

gtgctaccat cgggatcaaa ctgttcaaga agtttacttc gaaggcgtct taatgatagg 480

gttaccagtc taagcccgcc taatgagcgg gctttttttt tatcga 526

<210> 195
<211> 68
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 195
ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60

agctcagg 68

<210> 196
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 196
aggcttacta tgaagaaatc tctggttctt aaggctagcg ttgctgtcgc gaccctggta 60

cctatgt 67

<210> 197
<211> 70
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 197
tgtccttcgc tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc 60

gcatcatccg 70

<210> 198
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<220>
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<400> 198
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gattt 65

<210> 199
<211> 68
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<220>
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<400> 199
cttcatagta agcctcctga gctcaattgt gagcgctcac aattccacac attatacgag 60

ccggaagc 68

<210> 200
<211> 38
<212> DNA
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<220>
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<400> 200
ccagtctaag cccgcctaat gagcgggctt ttttttta 38

<210> 201
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<220>
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<400> 201
tcgataaaaa aaaagcccgc tcattaggc 29

<210> 202
<211> 69
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 202
gggcttagac tggtaaccct atcattaaga cgccttcgaa gtaaacttct tgaacagttt 60

gatcccgat 69

<210> 203
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<220>
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<400> 203

aggcttacta tgaag 15

<210> 204
<211> 13
<212> DNA
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<220>
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<400> 204
tgtccttcgc tcg 13

<210> 205
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 205
ctatttctac aatgc 15

<210> 206
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 206
aacaacttta aatcg 15

<210> 207
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 207
ccttcaattc tctgc 15

<210> 208
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 208
cgttggtgct acc 13

<210> 209
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 209
ccagtctaag ccc 13

<210> 210
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 210
ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacggtg gttgccgtgc 60

taagcgt 67

<210> 211
<211> 76
<212> DNA
<213> Artificial sequence

<220>
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<400> 211
aacaacttta atcggccga agattgcatg cgtacctgcg gtggcgccgc tgaaggtgat 60

gatccggcca aggcgg 76

<210> 212
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 212
ccttcaattc tctgcaagct tctgctaccg agtatattgg ttacgcgtgg gccatggtgg 60

tggttat 67

<210> 213
<211> 69
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 213
cgttggtgct accatcggga tcaaactgtt caagaagttt acttcgaagg cgtcttaatg 60

atagggtta 69

<210> 214
<211> 72
<212> DNA
<213> Artificial sequence

<220>
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<400> 214
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cagaaatccg ga 72

<210> 215
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 215
cgatttaaag ttgttacgct tagcacggca accaccgtat acaaaggtct ggcacaggcc 60

tgcttta 67

<210> 216
<211> 76
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 216
gcagagaatt gaaggccgcc ttggccggat catcaccttc agcggcgcca ccgcaggtac 60

gcatgcaatc ttcggc 76

<210> 217
<211> 65
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 217
ggtagcacca acgataacca ccaccatggc ccacgcgtaa ccaatatact cggtagcaga 60

agctt 65

<210> 218
<211> 23
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 218

Met Lys Gln Ser Thr Ile Ala Leu Ala Leu Leu Pro Leu Leu Phe Thr
1 5 10 15

Pro Val Thr Lys Ala Arg Thr
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<210> 219
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 219

Met Lys Ile Lys Thr Gly Ala Arg Ile Leu Ala Leu Ser Ala Leu Thr
1 5 10 15

Thr Met Met Phe Ser Ala Ser Ala Leu Ala Lys Ile
20 25

<210> 220
<211> 24
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic pepetide

<400> 220

Met Met Lys Arg Asn Ile Leu Ala Val Ile Val Pro Ala Leu Leu Val
1 5 10 15

Ala Gly Thr Ala Asn Ala Ala Glu
20

<210> 221
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 221

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro
20 25

<210> 222
<211> 27
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 222

Met Met Ile Thr Leu Arg Lys Leu Pro Leu Ala Val Ala Val Ala Ala
1 5 10 15

Gly Val Met Ser Ala Gln Ala Met Ala Val Asp
20 25

<210> 223
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 223

Met Lys Ala Thr Lys Leu Val Leu Gly Ala Val Ile Leu Gly Ser Thr
1 5 10 15

Leu Leu Ala Gly Cys Ser
20

<210> 224
<211> 23
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 224

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

His Ser Ala Glu Thr Val Glu

20

<210> 225
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 225

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp
20

<210> 226
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 226

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp
20 25

<210> 227
<211> 26
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 227

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp
20 25

<210> 228
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 228

Met Lys Lys Ser Leu Val Leu Leu Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp
20 25

<210> 229
<211> 1302
<212> DNA
<213> M13

<400> 229
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60

actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 120

gacgacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 180

gttgtagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 240

gctatccctg aaaatgaggg tggtggctct gagggtggcg gttctgaggg tggcggttct 300

gagggtggcg gtactaaacc tcctgagtac ggtgatacac ctattccggg ctatacttat 360

atcaaccctc tcgacggcac ttatccgcct ggtactgagc aaaaccccgc taatcctaat 420

ccttctcttg aggagtctca gcctcttaat actttcatgt ttcagaataa taggttccga 480

aataggcagg gggcattaac tgtttatacg ggcactgtta ctcaaggcac tgaccccgtt 540

aaaacttatt accagtacac tcctgtatca tcaaaagcca tgtatgacgc ttactggaac 600

ggtaaattca gagactgcgc tttccattct ggctttaatg aggatccatt cgtttgtgaa 660

tatcaaggcc aatcgtctga cctgcctcaa cctcctgtca atgctggcgg cggctctggt 720

ggtggttctg gtggcggctc tgagggtggt ggctctgagg gtggcggttc tgagggtggc 780

ggctctgagg gaggcggttc cggtggtggc tctggttccg gtgattttga ttatgaaaag 840

atggcaaacg ctaataaggg ggctatgacc gaaaatgccg atgaaaacgc gctacagtct 900

gacgctaaag gcaaacttga ttctgtcgct actgattacg gtgctgctat cgatggtttc 960

attggtgacg tttccggcct tgctaatggt aatggtgcta ctggtgattt tgctggctct 1020

aattcccaaa tggctcaagt cggtgacggt gataattcac ctttaatgaa taatttccgt 1080

caatatttac cttccctccc tcaatcggtt gaatgtcgcc cttttgtctt tagcgctggt 1140

aaaccatatg aattttctat tgattgtgac aaaataaact tattccgtgg tgtctttgcg 1200

tttcttttat atgttgccac ctttatgtat gtattttcta cgtttgctaa catactgcgt 1260

aataaggagt cttaatcatg ccagttcttt tgggtattcc gt 1302

<210> 230
<211> 66
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 230
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60

actgtt 66

<210> 231
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 231

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

His Ser Ala Glu Thr Val
20

<210> 232
<211> 66
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 232
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctgg cgccgctgaa 60

actgtt 66

<210> 233
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 233

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Ala Glu Thr Val
20

<210> 234
<211> 1482
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide

<400> 234
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gatttctgtc tcgagccacc atacactggg ccctgcaaag cgcgcatcat ccgctatttc 120

tacaatgcta aagcaggcct gtgccagacc tttgtatacg gtggttgccg tgctaagcgt 180

aacaacttta aatcggccga agattgcatg cgtacctgcg gtggcgccgg cgccgctgaa 240

actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 300

gacgacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 360

gttgtagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 420

gctatccctg aaaatgaggg tggtggctct gagggtggcg gttctgaggg tggcggttct 480

gagggtggcg gtactaaacc tcctgagtac ggtgatacac ctattccggg ctatacttat 540

atcaaccctc tcgacggcac ttatccgcct ggtactgagc aaaaccccgc taatcctaat 600

ccttctcttg aggagtctca gcctcttaat actttcatgt ttcagaataa taggttccga 660

aataggcagg gggcattaac tgtttatacg ggcactgtta ctcaaggcac tgaccccgtt 720

aaaacttatt accagtacac tcctgtatca tcaaaagcca tgtatgacgc ttactggaac 780

ggtaaattca gagactgcgc tttccattct ggctttaatg aggatccatt cgtttgtgaa 840

tatcaaggcc aatcgtctga cctgcctcaa cctcctgtca atgctggcgg cggctctggt 900

ggtggttctg gtggcggctc tgagggtggt ggctctgagg gtggcggttc tgagggtggc 960

ggctctgagg gaggcggttc cggtggtggc tctggttccg gtgattttga ttatgaaaag 1020

atggcaaacg ctaataaggg ggctatgacc gaaaatgccg atgaaaacgc gctacagtct 1080

gacgctaaag gcaaacttga ttctgtcgct actgattacg gtgctgctat cgatggtttc 1140

attggtgacg tttccggcct tgctaatggt aatggtgcta ctggtgattt tgctggctct 1200

aattcccaaa tggctcaagt cggtgacggt gataattcac ctttaatgaa taatttccgt 1260

caatatttac cttccctccc tcaatcggtt gaatgtcgcc cttttgtctt tagcgctggt 1320

aaaccatatg aattttctat tgattgtgac aaaataaact tattccgtgg tgtctttgcg 1380

tttcttttat atgttgccac ctttatgtat gtattttcta cgtttgctaa catactgcgt 1440

aataaggagt cttaatcatg ccagttcttt tgggtattcc gt 1482

<210> 235
<211> 84
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 235

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
35 40 45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
50 55 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
65 70 75 80

Thr Val Glu Ser

<210> 236
<211> 567
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 236
ggatccactc cccatccccc tgttgacaat taatcatcgg ctcgtataat gtgtggaatt 60

gtgagcgctc acaattgagc tctggaggaa ataaaatgaa gaaatctctg gttcttaagg 120

ctagcgttgc tgtcgcgacc ctggtaccta tgttgtcctt cgctcgtccg gatttctgtc 180

tcgagccacc atacactggg ccctgcaaag cgcgcatcat ccgctatttc tacaatgcta 240

aagcaggcct gtgccagacc tttgtatacg gtggttgccg tgctaagcgt aacaacttta 300

aatcggccga agattgcatg cgtacctgcg gtggcgccgc tgaaggtgat gatccggcca 360

aggcggcctt caattctctg caagcttctg ctaccgagta tattggttac gcgtgggcca 420

tggtggtggt tatcgttggt gctaccatcg ggatcaaact gttcaagaag tttacttcga 480

aggcgtctta atgatagggt taccagtcta agcccgccta atgagcgggc ttttttttta 540

tcgagacctg caggtcgacc ggcatgc 567

<210> 237
<211> 73
<212> PRT
<213> M13

<400> 237

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala
20 25 30

Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala
35 40 45

Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu
50 55 60

Phe Lys Lys Phe Thr Ser Lys Ala Ser
65 70

<210> 238
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 238

Ala Cys Ala Ala Ala Ala Cys Ala
1 5

<210> 239
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 239

Gly Glu Asn Glu Gly Cys Asp Thr Glu Gln Lys Ala Lys Asn Gln Gly
1 5 10 15

Gly Ser Tyr Gly Tyr Cys Tyr
20

<210> 240
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 240

Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
1 5 10 15

Thr Lys Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro
20 25 30

Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu
35 40 45

Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe
50 55 60

Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly
65 70 75 80

Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr
85 90 95

Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala
100 105 110

Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser
115 120 125

<210> 241
<211> 12
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 241
ggaggaaata aa 12

<210> 242
<211> 550
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide

<400> 242
ggatccactc cccatccccc tgttgacaat taatcatcgg ctcgtataat gtgtggaatt 60

gtgagcgctc acaattgagc tccatgggag aaaataaaat gaaacaaagc acgatcgcac 120

tcttaccgtt actgtttacc cctgtgacaa aagcccgtcc ggatttctgt ctcgagccac 180

catacactgg gccctgcaaa gcgcgcatca tccgctattt ctacaatgct aaagcaggcc 240

tgtgccagac ctttgtatac ggtggttgcc gtgctaagcg taacaacttt aaatcggccg 300

aagattgcat gcgtacctgc ggtggcgccg ctgaaggtga tgatccggcc aaggcggcct 360

tcaattctct gcaagcttct gctaccgagt atattggtta cgcgtgggcc atggtggtgg 420

ttatcgttgg tgctaccatc gggatcaaac tgttcaagaa gtttacttcg aaggcgtctt 480

aatgataggg ttaccagtct aagcccgcct aatgagcggg ctttttttt atcgagacct 540

gcaggtcgac 550

<210> 243
<211> 484
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 243

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
35 40 45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
50 55 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
65 70 75 80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe Thr
85 90 95

Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu
100 105 110

Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu

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        115                 120                 125

Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu
    130                 135                 140

Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser
145                 150                 155                 160

Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile Pro
                165                 170                 175

Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly Thr
            180                 185                 190

Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro
        195                 200                 205

Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly
    210                 215                 220

Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val
225                 230                 235                 240

Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp
                245                 250                 255

Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe
            260                 265                 270

Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu
        275                 280                 285

Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly
    290                 295                 300

Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly
305                 310                 315                 320

Gly Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe
                325                 330                 335

Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn
            340                 345                 350

Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser
        355                 360                 365
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Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val
    370                 375                 380

Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser
385                 390                 395                 400

Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met
                405                 410                 415

Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys
            420                 425                 430

Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp
        435                 440                 445

Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr
    450                 455                 460

Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg
465                 470                 475                 480

Asn Lys Glu Ser
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<210> 244
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 244

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Pro Cys Val Ala Met Phe Gln Arg
1               5
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<210> 245
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 245

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Pro Cys Val Gly Phe Phe Ser Arg Tyr
1               5
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<210> 246

<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 246

Pro Cys Val Gly Phe Phe Gln Arg Tyr
1 5

<210> 247
<211> 9
<212> PRT
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<220>
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<400> 247

Pro Cys Val Ala Met Phe Pro Arg Tyr
1 5

<210> 248
<211> 9
<212> PRT
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<220>
<223> synthetic peptide

<400> 248

Pro Cys Val Ala Ile Phe Pro Arg Tyr
1 5

<210> 249
<211> 9
<212> PRT
<213> Artificial sequence

<220>
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<400> 249

Pro Cys Val Ala Ile Phe Lys Arg Ser
1 5

<210> 250
<211> 9
<212> PRT
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<220>
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<400> 250

Pro Cys Ile Ala Phe Phe Pro Arg Tyr
1 5

<210> 251
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 251

Pro Cys Ile Ala Phe Phe Gln Arg Tyr
1 5

<210> 252
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 252

Pro Cys Ile Ala Leu Phe Lys Arg Tyr
1 5

<210> 253
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Oligonucleotide

<400> 253
aaagcgcgca tcatc 15

<210> 254
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 254

Lys Ala Arg Ile Ile
1 5

<210> 255

<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 255

Met Gly Phe Ser Lys
1 5

<210> 256
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 256

Met Ala Leu Phe Lys
1 5

<210> 257
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 257

Phe Ala Ile Thr Pro
1 5

<210> 258
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 258

Met Ala Leu Phe Gln
1 5

<210> 259
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 259

Met Ala Ile Ser Pro
1 5

<210> 260
<211> 4
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 260

Leu Lys Lys Ser
1

<210> 261
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 261

Leu Ser Ser Ser Gly
1 5

<210> 262
<211> 1455
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide

<400> 262
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctgg cgcccgtccg 60

gatttctgtc tcgagccacc atacactggg ccctgcaaag cgcgcatcat ccgctatttc 120

tacaatgcta aagcaggcct gtgccagacc tttgtatacg gtggttgccg tgctaagcgt 180

aacaacttta aatcggccga agattgcatg cgtacctgcg gtggcgccgg cgccgctgaa 240

actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 300

gacgacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 360

gttgtagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 420

gctatccctg aaaatgaggg tggtggctct gagggtggcg gttctgaggg tggcggttct 480

gagggtggcg gtactaaacc tcctgagtac ggtgatacac ctattccggg ctatacttat 540

atcaaccctc tcgacggcac ttatccgcct ggtactgagc aaaaccccgc taatcctaat 600

ccttctcttg aggagtctca gcctcttaat actttcatgt ttcagaataa taggttccga 660

aataggcagg gggcattaac tgtttatacg ggcactgtta ctcaaggcac tgaccccgtt 720

aaaacttatt accagtacac tcctgtatca tcaaaagcca tgtatgacgc ttactggaac 780

ggtaaattca gagactgcgc tttccattct ggctttaatg aggatccatt cgtttgtgaa 840

tatcaaggcc aatcgtctga cctgcctcaa cctcctgtca atgctggcgg cggctctggt 900

ggtggttctg gtggcggctc tgagggtggt ggctctgagg gtggcggttc tgagggtggc 960

ggctctgagg gaggcggttc cggtggtggc tctggttccg gtgattttga ttatgaaaag 1020

atggcaaacg ctaataaggg ggctatgacc gaaaatgccg atgaaaacgc gctacagtct 1080

gacgctaaag gcaaacttga ttctgtcgct actgattacg gtgctgctat cgatggtttc 1140

attggtgacg tttccggcct tgctaatggt aatggtgcta ctggtgattt tgctggctct 1200

aattcccaaa tggctcaagt cggtgacggt gataattcac ctttaatgaa taatttccgt 1260

caatatttac cttccctccc tcaatcggtt gaatgtcgcc cttttgtctt tagcgctggt 1320

aaaccatatg aattttctat tgattgtgac aaaataaact tattccgtgg tgtctttgcg 1380

tttcttttat atgttgccac ctttatgtat gtattttcta cgtttgctaa catactgcgt 1440

aataaggagt cttaa 1455

<210> 263
<211> 526
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide

<400> 263
ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60

agctcaggag gcttactatg aagaaatctc tggttcttaa ggctagcgtt gctgtcgcga 120

ccctggtacc tatgttgtcc ttcgctcgtc cggatttctg tctcgagcca ccatacactg 180

ggccctgcaa agcgcgcatc atccgctatt tctacaatgc taaagcaggc ctgtgccaga 240

cctttgtata cggtggttgc cgtgctaagc gtaacaactt taaatcggcc gaagattgca 300

tgcgtacctg cggtggcgcc gctgaaggtg atgatccggc caaggcggcc ttcaattctc 360

tgcaagcttc tgctaccgag tatattggtt acgcgtgggc catggtggtg gttatcgttg 420

gtgctaccat cgggatcaaa ctgttcaaga agtttacttc gaaggcgtct taatgatagg 480

gttaccagtc taagcccgcc taatgagcgg gctttttttt tatcga 526

<210> 264

<211> 526
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide

<400> 264
tcgataaaaa aaaagcccgc tcattaggcg ggcttagact ggtaacccta tcattaagac 60

gccttcgaag taaacttctt gaacagtttg atcccgatgg tagcaccaac gataaccacc 120

accatggccc acgcgtaacc aatatactcg gtagcagaag cttgcagaga attgaaggcc 180

gccttggccg gatcatcacc ttcagcggcg ccaccgcagg tacgcatgca atcttcggcc 240

gatttaaagt tgttacgctt agcacggcaa ccaccgtata caaaggtctg gcacaggcct 300

gctttagcat tgtagaaata gcggatgatg cgcgctttgc agggcccagt gtatggtggc 360

tcgagacaga aatccggacg agcgaaggac aacataggta ccagggtcgc gacagcaacg 420

ctagccttaa gaaccagaga tttcttcata gtaagcctcc tgagctcaat tgtgagcgct 480

cacaattcca cacattatac gagccggaag cataaagtgt aaagcc 526

<210> 265
<211> 58
<212> PRT
<213> Bos Taurus

<400> 265

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 266
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered B-PTI from MARK87

<400> 266

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Thr Lys Ala
1 5 10 15

```
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  267
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Engineered B-PTI from MARK87

<400>  267

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  268
<211>  67
<212>  PRT
<213>  Bos taurus (Bovine Colostrum)

<400>  268

Phe Gln Thr Pro Pro Asp Leu Cys Gln Leu Pro Gln Ala Arg Gly Pro
1               5                   10                  15

Cys Lys Ala Ala Leu Leu Arg Tyr Phe Tyr Asn Ser Thr Ser Asn Ala
            20                  25                  30

Cys Glu Pro Phe Thr Tyr Gly Gly Cys Gln Gly Asn Asn Asn Asn Phe
        35                  40                  45

Glu Thr Thr Glu Met Cys Leu Arg Ile Cys Glu Pro Pro Gln Gln Thr
    50                  55                  60

Asp Lys Ser
65


<210>  269
<211>  60
<212>  PRT
<213>  Bos Taurus (Bovine serum)
```

<400> 269

```
Thr Glu Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
1               5                  10                  15

Lys Ala Ala Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys
            20                  25                  30

Glu Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys
        35                  40                  45

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55                  60
```

<210> 270
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 270

```
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                  10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 271
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 271

```
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala
1               5                  10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 272
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 272

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 273
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 273

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Leu Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 274
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 274

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

```
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 275
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered BPTI, AUER87

<400> 275

```
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 276
<211> 60
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba venom I)

<400> 276

```
Gln Pro Leu Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1               5                   10                  15

Tyr Gln Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
            20                  25                  30

Glu Gly Phe Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
        35                  40                  45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys
    50                  55                  60
```

<210> 277
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba venom K)

<400> 277

```
Ala Ala Lys Tyr Cys Lys Leu Pro Leu Arg Ile Gly Pro Cys Lys Arg
1               5                   10                  15

Lys Ile Pro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro
            20                  25                  30

Phe Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
        35                  40                  45

Glu Glu Cys Arg Arg Thr Cys Val Gly
    50                  55
```

<210> 278
<211> 57
<212> PRT
<213> Hemachatus hemachates

<400> 278

```
Arg Pro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1               5                   10                  15

Tyr Ile Arg Ser Phe His Tyr Asn Leu Ala Ala Gln Gln Cys Leu Gln
            20                  25                  30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
        35                  40                  45

Asp Glu Cys Arg Arg Thr Cys Val Gly
    50                  55
```

<210> 279
<211> 57
<212> PRT
<213> Naja nivea

<400> 279

```
Arg Pro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1               5                   10                  15

Arg Ile Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu
            20                  25                  30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
        35                  40                  45

Asp Glu Cys His Arg Thr Cys Val Gly
    50                  55
```

<210> 280
<211> 60
<212> PRT
<213> Vipera russelli

<400> 280

```
His Asp Arg Pro Thr Phe Cys Asn Leu Pro Pro Glu Ser Gly Arg Cys
1               5                   10                  15
```

```
Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys
            20                  25                  30

Lys Val Phe Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu
        35                  40                  45

Thr Arg Asp Glu Cys Arg Glu Thr Cys Gly Gly Lys
    50                  55                  60


<210>  281
<211>  64
<212>  PRT
<213>  Caretta sp. (Red sea turtle egg white)

<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  Xaa is Glu or Gln

<400>  281

Xaa Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro
1               5                   10                  15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met
            20                  25                  30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe
        35                  40                  45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro
    50                  55                  60


<210>  282
<211>  58
<212>  PRT
<213>  Helix pomania

<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  Xaa is Glu or Gln

<400>  282

Xaa Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys
1               5                   10                  15

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys
            20                  25                  30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp
        35                  40                  45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val
    50                  55
```

<210> 283
<211> 57
<212> PRT
<213> Dendroaspis angusticeps (Eastern green mamba C13 S1 C3 toxin)

<400> 283

Ala Ala Lys Tyr Cys Lys Leu Pro Val Arg Tyr Gly Pro Cys Lys Lys
1 5 10 15

Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro
20 25 30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 284
<211> 59
<212> PRT
<213> Dendroaspis angusticeps (Eastern green mamba C13 S2 C3 toxin)

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 284

Xaa Pro Arg Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1 5 10 15

Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
20 25 30

Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
35 40 45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly
50 55

<210> 285
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba B toxin)

<400> 285

Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe
1 5 10 15

Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro
20 25 30

Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Val

50 55

<210> 286
<211> 59
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba E toxin)

<400> 286

Leu Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys
1 5 10 15

Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys
20 25 30

Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser
35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly
50 55

<210> 287
<211> 61
<212> PRT
<213> Vipera ammodytes TI toxin

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 287

Xaa Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys
20 25 30

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys
35 40 45

Thr Trp Asp Glu Cys Arg Gln Thr Cys Gly Ala Ser Ala
50 55 60

<210> 288
<211> 62
<212> PRT
<213> Vipera ammodytes CTI toxin

<400> 288

Arg Asp Arg Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Leu Ala Tyr Met Pro Arg Phe Tyr Tyr Asn Pro Ala Ser Asn Lys Cys
20 25 30

Glu Lys Phe Ile Tyr Gly Gly Cys Arg Gly Asn Ala Asn Asn Phe Lys

```
        35                  40                  45

Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile
    50                  55                  60


<210>  289
<211>  62
<212>  PRT
<213>  Bungarus fasciatus VIII B toxin

<400>  289

Lys Asn Arg Pro Thr Phe Cys Asn Leu Leu Pro Glu Thr Gly Arg Cys
1               5                   10                  15

Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys
            20                  25                  30

Gln Lys Phe Asn Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys
        35                  40                  45

Thr Ile Asp Glu Cys Gln Arg Thr Cys Ala Ala Lys Tyr Gly
    50                  55                  60


<210>  290
<211>  59
<212>  PRT
<213>  Anemonia sulcata

<400>  290

Ile Asn Gly Asp Cys Glu Leu Pro Lys Val Val Gly Pro Cys Arg Ala
1               5                   10                  15

Arg Phe Pro Arg Tyr Tyr Tyr Asn Ser Ser Ser Lys Arg Cys Glu Lys
            20                  25                  30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu
        35                  40                  45

Glu Glu Cys Glu Lys Val Cys Gly Val Arg Ser
    50                  55


<210>  291
<211>  56
<212>  PRT
<213>  Homo sapiens


<400>  291

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
1               5                   10                  15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
            20                  25                  30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
        35                  40                  45
```

Lys Glu Cys Leu Gln Thr Cys Arg
50 55

<210> 292
<211> 61
<212> PRT
<213> Homo sapiens

<400> 292

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu
50 55 60

<210> 293
<211> 60
<212> PRT
<213> Bungarus multicinctus (beta bungarotoxin B1)

<400> 293

Arg Gln Arg His Arg Asp Cys Asp Lys Pro Pro Asp Lys Gly Asn Cys
1 5 10 15

Gly Pro Val Arg Ala Phe Tyr Tyr Asp Thr Arg Leu Lys Thr Cys Lys
20 25 30

Ala Phe Gln Tyr Arg Gly Cys Asp Gly Asp His Gly Asn Phe Lys Thr
35 40 45

Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro
50 55 60

<210> 294
<211> 60
<212> PRT
<213> Bungarus multicinctus (beta bungarotoxin B2)

<400> 294

Arg Lys Arg His Pro Asp Cys Asp Lys Pro Pro Asp Thr Lys Ile Cys
1 5 10 15

Gln Thr Val Arg Ala Phe Tyr Tyr Lys Pro Ser Ala Lys Arg Cys Val
20 25 30

Gln Phe Arg Tyr Gly Gly Cys Asp Gly Asp His Gly Asn Phe Lys Ser
35 40 45

```
Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg
    50                  55                  60


<210>  295
<211>  58
<212>  PRT
<213>  Bos taurus

<400>  295

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  296
<211>  61
<212>  PRT
<213>  Tachypleus tridentatus

<400>  296

Thr Glu Arg Gly Phe Leu Asp Cys Thr Ser Pro Pro Val Thr Gly Pro
1               5                   10                  15

Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln
            20                  25                  30

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr
        35                  40                  45

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe
    50                  55                  60


<210>  297
<211>  62
<212>  PRT
<213>  Bombyx mori


<220>
<221>  misc_feature
<222>  (14)..(14)
<223>  Xaa is Phe or Gly


<400>  297

Asp Glu Pro Thr Thr Asp Leu Pro Ile Cys Glu Gln Ala Xaa Asp
1               5                   10                  15

Ala Gly Leu Cys Phe Gly Tyr Met Lys Leu Tyr Ser Tyr Asn Gln Glu
```

```
                20                  25                  30

Thr Lys Asn Cys Glu Glu Phe Ile Tyr Gly Gly Cys Gln Gly Asn Asp
            35                  40                  45

Asn Arg Phe Ser Thr Leu Ala Glu Cys Glu Gln Lys Cys Ile Asn
        50                  55                  60


<210>  298
<211>  56
<212>  PRT
<213>  Bos taurus

<400>  298

Lys Ala Asp Ser Cys Gln Leu Asp Tyr Ser Gln Gly Pro Cys Leu Gly
1               5                   10                  15

Leu Phe Lys Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
            20                  25                  30

Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln
        35                  40                  45

Lys Glu Cys Leu Gln Thr Cys Arg
    50                  55


<210>  299
<211>  61
<212>  PRT
<213>  Bos taurus

<400>  299

Thr Val Glu Ala Cys Asn Leu Pro Ile Val Gln Gly Pro Cys Arg Ala
1               5                   10                  15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg
            20                  25                  30

Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln
        35                  40                  45

Lys Glu Cys Lys Glu Tyr Cys Gly Ile Pro Gly Glu Ala
    50                  55                  60


<210>  300
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Engineered BPTI (KR15, ME52)

<400>  300

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Arg Ala
1               5                   10                  15
```

```
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
    50                  55


<210>  301
<211>  59
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Isoaprotinin G-1

<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  Xaa is Glu or Gln

<400>  301

Xaa Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys
1               5                   10                  15

Ala Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
            20                  25                  30

Pro Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys Ser
        35                  40                  45

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  302
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Isoaprotinin 2

<400>  302

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ser
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 303
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin G-2

<400> 303

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 304
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin 1

<400> 304

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55